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5. (Amended) The sensed-pressure-data converter according to claim 1, wherein said controller further comprises an abnormality detecting output terminal for detecting and outputting a signal showing an abnormality of a signal processing in said controller.

REMARKS

I. Introduction

In response to the pending Office Action, Applicants have amended the Abstract so as to address the objection thereto raised in the Office Action, and amended Fig. 14 so as to include the legend "Prior Art". In addition, claims 1, 4 and 5 have been amended so as to clarify the intended subject matter of the present as well as to address the objection of claim 5 set forth on page 3 of the Office Action. No new matter has been added.

For the reasons set forth below, it is respectfully submitted that all pending claims are in condition for allowance.

II. The Rejection Of The Claims Under 35 U.S.C. § 103

Claims 1-5 were rejected under 35 U.S.C. § 103 as being obvious in view of USP No. 5,479,096 to Szczyrbak et al. in view of Applicants' Admitted Prior Art (AAPA). Applicants respectfully submit that for the following reasons, all pending claims are now in condition for allowance.

As set forth above, claim 1 has been amended to recite a part of original claim 4. Specifically, claim 1 has been amended to recite that the sensed-pressure-data

converter includes "an error amplifier" which receives as input signals: (1) an output from the D/A converter and (2) a reference voltage value, and which outputs an error signal which is coupled to the "adjustment value input terminal" of the A/D converter of the controller. Referring to Fig. 11 and pages 15 and 16 of the specification, in the compensation value setting mode of operation, the error amplifier 37 receives the compensated value output by D/A converter 35 and the reference voltage signal 36 as input signals, and generates an error signal based on these inputs. The error amplifier 37 outputs this error signal to A/D converter 32. Advantageously, by utilizing the error amplifier 37, it is not necessary to input adjustment values from an external source during the compensation value setting operation.

Turning to the cited prior art, neither Szczyrbak nor the AAPA disclose or suggest a device utilizing an error amplifier configured in the foregoing manner as recited by amended claim 1. Indeed, it does not appear that Szczyrbak even discloses or suggest how to determine the predetermined correction data. As set forth in col. 4, lines 10-22, Szczyrbak simply states that the offset values (i.e., correction data) are stored in PROM memory. Referring to any of the figures of Szczyrbak it is clear that the reference does not disclose any "error amplifier" that receives the output signal from a D/A converter (assuming arguendo that block 40 of Szczyrbak contains a D/A converter) and a reference value as input signals. Clearly, contrary to the pending rejection, amplifier 40 cannot correspond to the claim "error amplifier" as amplifier 28 of Szczyrbak does not receive the recited inputs signals set forth in amended claim 1. Moreover, amplifier 28 of Szczyrbak does not generate an error signal representing the difference between the input signals. Indeed, just the opposite, amplifier 28 outputs a "corrected" signal.

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Thus, as each and every limitation of the claim must be disclosed or suggested by the cited prior art in order to establish a *prima facie* case of obviousness (see, M.P.E.P. § 2143.03), and for at least the foregoing reasons neither Szczyrbak nor the AAPA, taken alone or in combination, do so, it is respectfully submitted that amended claim 1 is patentable over the combination of Szczyrbak and the AAPA.

It is also well known that the fact that the prior art could be modified so as to result in the combination defined by the claims at bar would not have made the modification obvious unless the prior art suggests the desirability of the modification. ***In re Deminski***, 796 F.2d 436, 230 USPQ 313 (Fed. Cir. 1986).

Moreover, recognizing after the fact that such a modification would provide an improvement or advantage, without suggestion thereof by the prior art, rather than dictating a conclusion of obviousness, is an indication of improper application of hindsight considerations. Simplicity and hindsight are not proper criteria for resolving obviousness. ***In re Warner***, 379 F.2d 1011, 154, USPQ 173 (CCPA 1967).

At a minimum, it is only Applicants' disclosure that discloses the use of the foregoing "error amplifier" in the claimed "sensed-pressure-data converter". Neither Szczyrbak nor the AAPA describe or suggest such a feature. Thus, the only motivation of record for the proposed modification of the device of Szczyrbak or the AAPA to arrive at the claimed invention is found in Applicants' disclosure which, of course, may not properly be relied upon to support the ultimate legal conclusion of obviousness under 35 U.S.C. §103. ***Panduit Corp. v. Dennison Mfg. Co.***, 810 F.2d 1561, 227 1 USPQ2d 1593 (Fed. Cir. 1987).

For all of the foregoing reasons, it is respectfully submitted that claim 1 is patentable over the combination of cited prior art.

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III. All Dependent Claims Are Allowable Because The Independent Claim From Which They Depend Is Allowable

Under Federal Circuit guidelines, a dependent claim is nonobvious if the independent claim upon which it depends is allowable because all the limitations of the independent claim are contained in the dependent claims, ***Hartness International Inc. v. Simplimatic Engineering Co.***, 819 F.2d at 1100, 1108 (Fed. Cir. 1987). Accordingly, as the pending independent claim is patentable for the reasons set forth above, it is respectfully submitted that all pending dependent claims are also in condition for allowance.

IV. Request For Notice Of Allowance

Having fully responded to all matters raised in the Office Action, Applicants submit that all claims are in condition for allowance, an indication for which is respectfully solicited.

If there are any outstanding issues that might be resolved by an interview or an Examiner's amendment, the Examiner is requested to call Applicants' attorney at the telephone number shown below.

Respectfully submitted,

McDERMOTT, WILL & EMERY

Date: 7/25/02 By: _____

Michael E. Fogarty
Registration No. 36,139

600 13th Street, N.W. , Suite 1200
Washington, D.C. 20005-3096
Telephone: 202-756-8000
Facsimile: 202-756-8087 WDC99 629414-1.043890.0482

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE TITLE:

The title has been amended as follows:

[PRESSURE-SENSITIVE TRANSDUCER] SENSED-PRESSURE-DATA CONVERTER

IN THE ABSTRACT:

Paragraph beginning at page 21, line 2, has been amended as follows:

[It is an object of the invention to present a] A sensed-pressure-data converter having a circuit for reducing a fluctuation of the output due to a fluctuation of a resistance and a resistance changing characteristic of a pressure sensitive resistance element and for reducing the output offset and offset drift of the pressure sensitive resistance element. [To achieve the object, the] The converter of the invention comprises a pressure sensitive resistance element (1), and a controller (2). The controller is an electric circuit connected to the pressure sensitive resistance element for detecting the electric characteristic of the element and includes A/D converters (3, 4), a D/A converter (6), and a memory (5). The controller compensates the electric characteristic due to a resistance change of the pressure sensitive resistance element and issues it from the D/A converter (6). The sensed-pressure-data converter further comprises a temperature sensor connected to the input terminal of the A/D converter in the controller, an adjustment input terminal (7) for inputting an error between the electric characteristic of the pressure sensitive resistance element and a reference electric characteristic into the input terminal of the A/D converter in the controller, which reduces the output offset and offset drift of the pressure sensitive resistance element.

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IN THE CLAIMS:

Claims 1, 4 and 5 have been amended as follows:

1. (Amended) A sensed-pressure-data converter comprising:

a pressure sensitive resistance element comprising:

two insulating substrates disposed face to face; and

a pressure sensitive conductor interposed between said insulating substrates, for varying a resistance thereof according to a load applied from an outside of said insulating substrates;

a controller for detecting an electric characteristic of said pressure sensitive resistance element, converting the electric characteristic into a desired electric characteristic signal, and issuing a desired electric characteristic signal, comprising:

an A/D converter receiving a signal from said pressure sensitive resistance element

a memory preliminarily storing a compensation value determined based on an error signal between the electric characteristic of said pressure sensitive resistance element and a reference electric characteristic; and

a D/A converter compensating a signal from said A/D converter based on the electric characteristic of said pressure sensitive resistance element due to a resistance change of said pressure sensitive resistance element based on the compensation value stored in said memory[, and converting into a desired electric characteristic signal] and issuing the compensated signal; [and]

an adjustment value input terminal for inputting the error signal into an input terminal of said A/D converter; and

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an error amplifier for receiving an output of said D/A converter and a reference value and for outputting the error signal to said adjustment value input terminal.

4. (Amended) The sensed-pressure-data converter according to claim 1 further comprising:

a reference output voltage source for issuing [a] the reference value on an offset of an output of said D/A converter[; and

an error amplifier for receiving an ouput of said D/A converter and the reference value and for outputting the error signal].

5. (Amended) The sensed-pressure-data converter according to claim 1, wherein said controller further comprises an abnormality detecting output terminal for detecting and outputting [an] a signal showing an abnormality of a signal processing in said controller.

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